Summary of March 31, 2009 Telephone Interview

On March 31, 2009, Applicants' undersigned counsel conducted a telephone interview with the Examiner to discuss the rejection of the amended claims base on the combination of Thrash and Saito. Applicants' undersigned counsel discussed in detail with the Examiner that Thrash does not disclose any parallel arc from a current carrying inner conductor to a body component of a vehicle (or other ground), and that the system of Thrash is not designed for protection against or detection of such a parallel arc. Rather, Thrash is designed for protection against a serial arc occurring between broken ends of the same inner conductor. It was discussed that, in Thrash, a parallel arc to an external ground was unlikely to occur, since the heating element 12 of Thrash contains wires for power and ground, and any such parallel arc would therefore occur within the cable of Thrash between the power and ground cables.

It was also discussed that the teachings of Saito are not combinable with that of Thrash. Saito discloses detecting a potential change that is due to a short between the detector line and ground when the insulating layer is damaged. Saito does not disclose or remotely suggest the concept of breaking or interrupting of the detector line. The concept of Saito would be inoperable if the detector line was broken due to the occurrence of an arc because if the detector line breaks there is no chance to reliably detect the potential change of the detector line. Further, in Saito, the conductor does not detect any type of arc originating from the inner wires 3, 4, 5, since Saito is only concerned with a short of the conductor member 2 with an external ground due to damage to the outer insulating layer 6 (not the individual insulation layers of the wires 3, 4, 5).

It was also discussed that Thrash does not disclose that a change in the carrier for the detector line causes a change in the detector line (as set forth in Applicants' claims 85 and 86). In particular, it was pointed out that in Thrash, it is specifically disclosed that the polyester material surrounding the stainless steel detector line melts at 256 degrees Celsius, while the stainless steel detector line melts at 1500 degrees Celsius. Thus, melting of the polyester does not cause a change in the steel detector line (Col. 4, lines 33-38).

It was also discussed that Thrash does not disclose or suggest a change in any optical property in the detector line, as set forth in Applicants' claim 88.

At the conclusion of the telephone interview, the Examiner indicated her understanding as to the differences between the claimed invention and the cited references, and indicated that she would reconsider her rejections upon review of a formal Response to the Office Action summarizing the arguments presented.

Additional details regarding the arguments presented during the telephone interview, along with additional arguments for the Examiner's consideration, are presented below.

Discussion of Rejections in View of Thrash and Saito

The Examiner relies on column 2, lines 1 to 10 of Thrash in which it is mentioned that the invention could be implemented in all types of electrical circuits electrical devices (Office Action, page 4). However, such a general remark cannot be considered to be a disclosure that the device of Thrash can be successfully adapted for use in the specific situation for use in a vehicle in which the power line in the cable is at a positive potential and the body of the car is at ground potential, as is the case with Applicants' claimed invention. It is respectfully submitted that the device of Thrash cannot be used for protection against parallel arcs to an external ground, such as the body of a vehicle.

In particular, and as discussed with the Examiner during the telephone interview, Thrash is limited to an arc within the heating element 12, as according to Thrash one conductor in the heating element is at a positive potential and the other conductor in the heating element is a ground (See Figure 3). Any other interpretation is not justified by the disclosure of Thrash.

The Examiner is correct that Thrash in column 6, lines 54 to 59 mentions an arc due to a break in either conductor 28 or 30. However, such an arc is not a parallel arc to an external ground (such as the body of a motor vehicle) as claimed by Applicants. According to column 6, lines 40 to 60 of Thrash, the arc is a so-called serial arc (an arc that occurs between broken ends of the same conductor line along the path of that conductor line - as defined, e.g., at page 17, lines

4-9 of Applicants' specification, and as shown at reference numeral 28' of Applicants' Figure 2). The limitation to serial arcs in Thrash is due to the fact that the detector line runs along the power lines so that a serial arc will heat the detector line and cause the described damage. However, the detector line of Thrash is not adapted to react in the same way to a so-called parallel arc to an external ground, because such a parallel arc will extend radially from the power line and can therefore be located on a side opposite to the detector line 34 so that the detector line is protected by the PTC material 26 of Thrash, which will "shield" the detector line 34 from being affected by such a parallel arc, as shown for example in the marked up copy of Fig. 2 of Thrash attached as Appendix 1. As a result, Thrash is not able to properly detect or react to a parallel arc to an external ground.

Rather, Thrash is designed to detect an arc occurring between a break in either of the conductors 28 and 30, which would be the classical example of what is considered to be a "serial arc." Attached as Appendix 2 is a marked up version of Figure 3 of Thrash, showing a serial arc of the type that Thrash is designed to detect.

As discussed with the Examiner, Thrash would not be able to detect a parallel arc to an external ground as shown in the drawing at Appendix 1, since a parallel arc at that location would not cause any heating in the area of the detector line 34 sufficient to brake the detector line. In fact, the detector element of Thrash would be thermally insulated from such a parallel arc by the isolating sheath 32.

In order to detect such a parallel arc as shown in the drawing at Appendix 1, Thrash would have to arrange the detector line 34 as claimed by Applicants in the present application (e.g., with successive windings surrounding the supply line over an extent of the supply line).

In contrast, in Thrash the detector element 34 runs parallel to the conductor 28 and 30 throughout the length of the heating element, such that Thrash cannot be interpreted to have a detector element surrounding the supply line.

It is respectfully submitted that Thrash, due to its specific design, discloses a concept which is not adaptable to the detection of parallel arcs to the body component of an vehicle, as is

the case with Applicants' claimed invention. In particular, a parallel arc as defined in Applicants' claims would not lead to any reaction of the detector element 34 of Thrash because the detector element 34 of Thrash would be shielded thermally by the isolating sheath 32 (see Appendix 1).

As discussed above, Saito is not concerned with the detection of any arcs. Accordingly, Saito does not cure the deficiencies of Thrash noted above.

The Examiner relies on Saito for disclosing a detector element with successive windings around a supply line. Saito does disclose a detector line 2 which surrounds conductor wires 3, 4, and 5. However, the combination of Thrash and Saito would not result in a device which would be able to detect a parallel arc from an inner conductor to an external ground such as the body of a motor vehicle, as claimed by Applicants. As discussed above, Saito discloses detecting a potential change that is due to a short between the detector line 2 and ground when the insulating layer is damaged. In Thrash, excessive heat from a serial arc between broken ends of the same conductor (i.e., as shown at Appendix 2 and in Applicants' Figure 2) causes the detector line 34 to break. The concept of Saito would be inoperable if the detector line was broken due to the occurrence of an arc because if the detector line 2 breaks, then a potential change of the detector line cannot be detected or monitored. If one of ordinary skill in the art were to combine the teachings of Thrash and Saito, it is respectfully submitted that they would arrive at a device with two detector lines, a first detector line for detecting a serial arc which first detector line breaks from heat cause by the serial arc as in Thrash, and a second detector line surrounding both the conductor wires and the first detector line for detection of a short between the second detector line and an external ground via a change in the potential of the second detector line. Such a device would be unable to detect a parallel arc from an inner conductor wire to an external ground such as the body of a motor vehicle.

Applicants respectfully submit that one skilled in the art would not have combined the concept of Thrash with the concept of Saito, because Saito discloses the concept that the detector line remains conductive and undisturbed by an arc. The combination of Thrash and Saito would therefore be a combination of two entirely different concepts: one concept being based on the

break of the detector line (Thrash) and the other concept being based on the maintaining the integrity of the detector line (Saito).

Accordingly, the combination of Thrash and Saito does not disclose or remotely suggest the detection of a parallel arc between a current carrying inner conductor and a body component of a vehicle as set forth in independent claims 40, 81, 82, 84, 85 and 88.

In addition, Applicants' independent claims 81 and 82 specify the use of two detector elements. Saito does disclose the use of two detector elements 14, 22. However, both of these conductor elements operate in the same manner to detect a short between the detector element14, 22 and ground via a change in the potential of the detector element 14, 22 (in the same manner as detector element 2 of Saito discussed above), and do not act the detect a parallel arc from one of the inner wires 3, 4, 5 to ground. Thus, the combination of Thrash and Saito does not disclose or remotely suggest the use of two detector elements, each of which detects a parallel arc from a current carrying inner conductor to the body of a motor vehicle (i.e., an external ground).

With regard to Applicants' independent claim 84, it is also noted that the Examiner has apparently overlooked that claim 84 specifies a carrier strip on which the detector line is held. It is respectfully submitted that neither Thrash nor Saito discloses or suggests a detector line held on a carrier strip as set forth in Applicants' claim 84.

Also, as discussed above, the Examiner has apparently misunderstood the operation of the carrier as claimed in Applicants' claims 85 and 86. With Applicants' claims 85 and 86, the detector element comprises a carrier (claim 85) or carrier strip (claim 86) and a detector line (claim 85) or detector track (claim 86), where the carrier/carrier strip is deformed under the effects of an arc from the inner conductor and the deformed carrier strip/track is what acts on the detector line/detector track to change its optical or electrical property. Thrash does disclose that the detector line 34 comprises stainless steel fibers twisted around a polyester yarn. As discussed above, Thrash does not disclose that a change in the carrier (polyester yarn) for the detector line causes a change in the detector line (as set forth in Applicants' claims 85 and 86). In particular, it was pointed out that in Thrash, it is specifically disclosed that the polyester yarn surrounding the

stainless steel detector line melts at 256 degrees Celsius, while the stainless steel detector line melts at 1500 degrees Celsius. Thus, melting of the polyester does not cause a change in the steel detector line (Col. 4, lines 33-38).

The carrier according to Thrash is only used to provide flexibility and stability to the very thin conductive stainless steel fibers of the detector line. However, in Thrash, the interruption of the stainless steel fibers is due to the sufficient heat acting on the fibers and not due to the melting of the carrier (since the fibers melt at a significantly higher temperature than the polyester carrier does).

In addition, neither Thrash nor Saito discloses or suggests a detector element comprising a carrier strip and a carrier track applied to the carrier strip, or that a carrier strip exerts mechanical forces on the track and thus changing a property of the track, as set forth in Applicants' claim 86.

As discussed above, Applicants' independent claim 88 refers to a change in an optical property of the detector element that is changed due to an arc from the current carrying inner conductor. The Examiner takes the position that the detector element 34 of Thrash is a conductive fiber having an optical property. It is respectfully submitted that Thrash does not disclose or remotely suggest any change in an optical property of a detector line. The detector element 34 of Thrash is a stainless steel fiber which does not have any optical properties (i.e., it is not disclosed as being a stainless steel fiber optic tube).

Applicants respectfully submit that the present invention would not have been obvious to one skilled in the art in view of Thrash in combination with Saito or any of the other prior art of record.

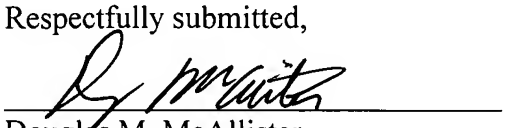
Further remarks regarding the asserted relationship between Applicants' claims and the prior art are not deemed necessary, in view of the telephone interview and the foregoing discussion. Applicants' silence as to any of the Examiner's comments is not indicative of an acquiescence to the stated grounds of rejection.

Withdrawal of the rejections under 35 U.S.C. § 103(a) is therefore respectfully requested.

Conclusion

The Examiner is respectfully requested to reconsider this application, allow each of the pending claims and to pass this application on to an early issue. If there are any remaining issues that need to be addressed in order to place this application into condition for allowance, the Examiner is requested to telephone Applicants' undersigned attorney.

Respectfully submitted,



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Date: May 5, 2009

Appendix 1

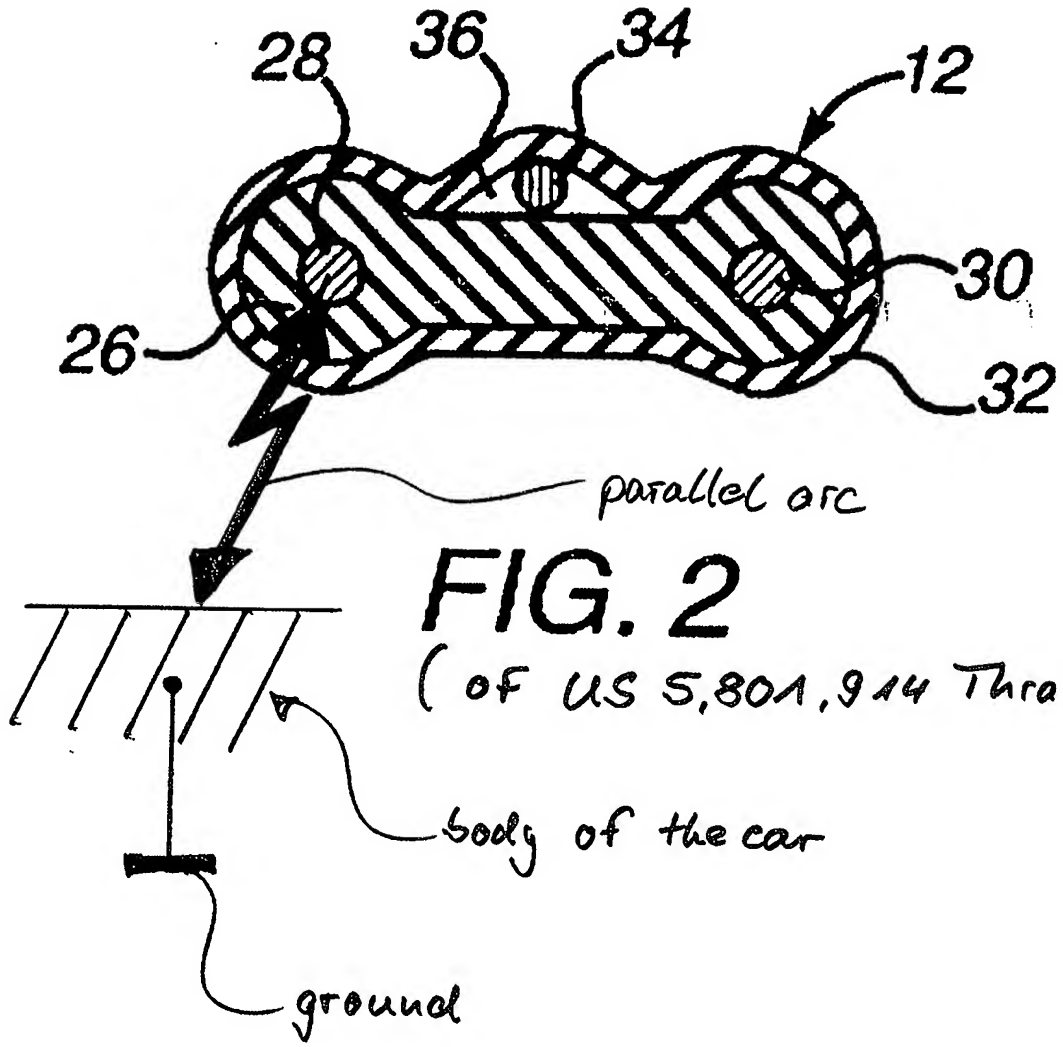

FIG. 2
(of US 5,801,914 Thrash)

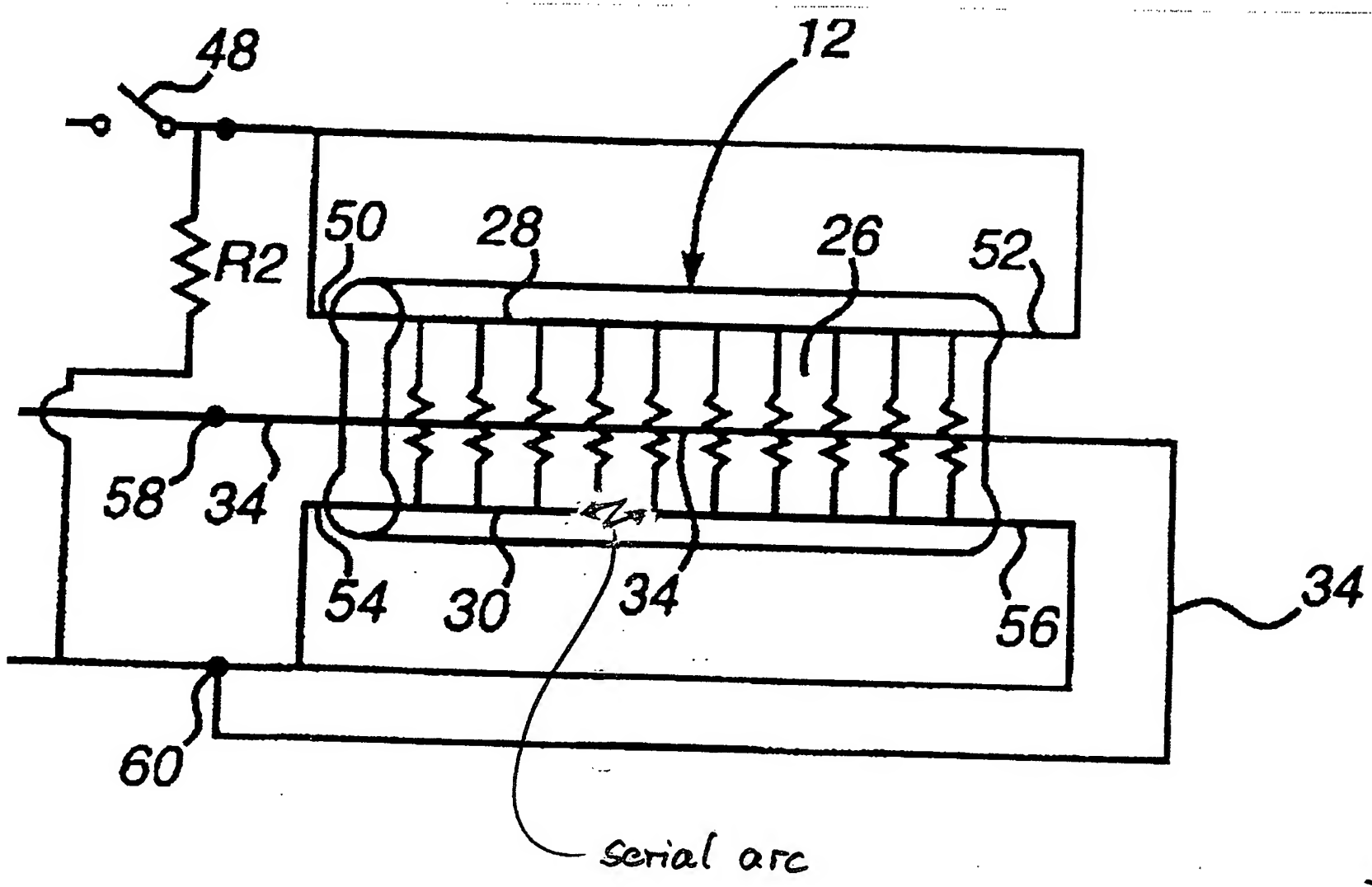

FIG. 3
(of US 5,801,914 Thrash)

Appendix 2